

Patent claims

1. A method for controlling the transmitting power in
5 a mobile radio system, in which a signal of a transmitter (1), received by a receiver (2) via a transmission channel of the mobile radio system, is evaluated and in dependence thereon a power control information item (6) is generated and
10 transmitted to the transmitter (1), and in which the transmitting power is adjusted in dependence on the power control information item (6) in the transmitter (1),
in which the behavior of the transmission channel
15 is estimated,
in which the transmitting power needed is estimated in dependence on the result of the estimation of the behavior of the transmission channel,
20 in that the power control information item (6) is generated on the basis of the estimated transmitting power needed and is transmitted to the transmitter (1),
characterized in that
25 the behavior of the transmission channel is estimated by prediction and in that the transmitting power needed in future is estimated in dependence on the result of the prediction of the behavior of the transmission channel.
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2. The method as claimed in claim 1, characterized in that the behavior of the channel state is estimated by predicting the channel impulse response.

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3. The method as claimed in claim 1, characterized in that the behavior of the channel state is estimated by predicting the carrier/interferer ratio.

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4. The method as claimed in one of claims 1 to 3, characterized in that the behavior of the transmission channel is estimated regularly, the interval between the individual estimates and the period over which the behavior of the transmission channel is predicted being in each case selected to be shorter than the coherence time of the transmission channel.
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- 10 5. The method as claimed in one of the preceding claims, characterized in that the value of the power control information item (6) is adjusted to be linearly dependent on the result of the estimation of the behavior of the transmission channel.
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- 20 6. The method as claimed in one of the preceding claims, characterized in that the power control information item (6) is generated in dependence on the estimated behavior of the transmission channel and additionally in dependence on the instantaneously measured received level of the signal received by the receiver (2), the proportion of the estimated behavior of the transmission channel in the generation of the power control information item (6) being adapted in dependence on the characteristic behavior of the transmission channel.
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- 30 7. The method as claimed in claim 6, characterized in that the transmitter (1) or receiver (2) is a mobile unit and in that the proportion of the estimated behavior of the transmission channel in the generation of the power control information (6) is reduced at higher speeds of the mobile unit.
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8. The method as claimed in claim 7, characterized in
that the instantaneous speed of the mobile unit is
estimated and in that the proportion of the
estimated behavior of the transmission channel in
the generation of the power control information
item (6) is adjusted in dependence on the
estimated speed of the mobile unit.
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9. The method as claimed in claim 8, characterized in
that the channel impulse response of the
transmission channel is measured and in dependence
thereon the coherence time of the transmission
channel is estimated in order to derive therefrom
the instantaneous speed of the mobile unit.
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15. 10. A mobile radio system comprising a transmitter (1)
and a receiver (2) for receiving a signal of the
transmitter (1) transmitted via a transmission
channel of the mobile radio system and for
evaluating the received signal in order to
generate in dependence thereon, and to transmit to
the transmitter (1), a power control information
item (6), the transmitter (1) being constructed in
such a manner that it adjusts the transmitting
power in dependence on the power control
information of the receiver (2), in which the
receiver (2) is constructed in such a manner that
it estimates the behavior of the transmission
channel in dependence on the received signal,
determines the transmitting power needed in
dependence on the result of the estimation of the
behavior of the transmission channel and
generates, and transmits to the transmitter (1),
the power control information item (6) on the
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basis of the necessary transmitting power determined,
characterized in that the receiver (2) is
constructed for performing the method as claimed
5 in one of claims 1-9.

11. The mobile radio system as claimed in claim 10,
characterized in that the receiver (2) generates
the power control information item (6) in the form
10 of a command for adjusting the transmitting power
directed to the transmitter (1).
12. The mobile radio system as claimed in claim 11,
characterized in that the mobile radio system is a
15 CDMA mobile radio system.